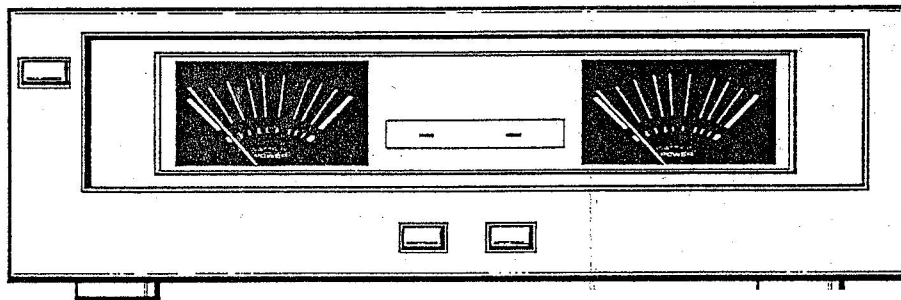


**SERVICE  
MANUAL**

**UMA - 400**

**STEREO MAIN AMPLIFIER**



UHER

UMA 400

UHER-Servicestelle

Helm GmbH

Luisenweg 97 • 2030 Hamburg 71

Tel. 040/21 29 71

## SPECIFICATIONS

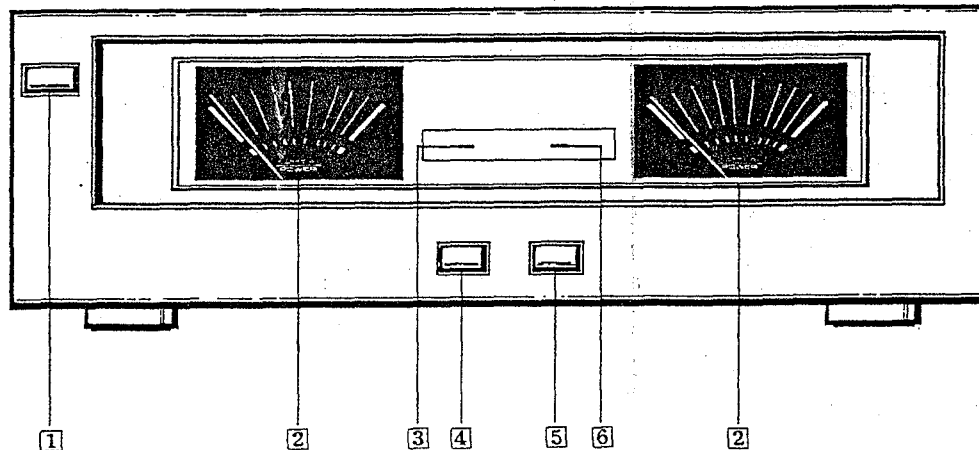
### Amplifier Section

Continuous average power output (both channel driven)	
into 8 Ohms(from 20Hz to 20kHz)	180W
into 8 Ohms(from 1kHz)	200W
Total Harmonic Distortion	
into 8 Ohms(from 20Hz to 20kHz)	0.08%
Signal to Noise Ration(IHF "A" Network)	114dB
Input(Sensitivity / Impedance)	1V / 56KΩ
Frequency Response	
6Hz to 110kHz	-3dB
Power "ON" Muting Time	5 Sec

### Miscellaneous

Power requirements	AC220V,50Hz
Power consumption	620W
Dimension(W X H X D)	420 X 130 X 380 mm

## FRONT PANEL FEATURES



### ① POWER SWITCH

Press the switch to supply power to the amplifier.

### ② OUTPUT LEVEL METER

The output power level meters give a visual indication of audio power being delivered to each speaker.

### ③, ⑥ PROTECTION CIRCUIT OPERATION INDICATOR LAMP

The red LED indicates when the protection circuit is activated and the green LED indicates when the protection circuit is off.

The protection circuit activate for 5-7 SEC when the Power is "ON" or a heat beyond a specific temperature.

### ④ SPEAKER "A" SELECTOR SWITCH

Press button to listen to the sound connected to the speaker terminal A.

[ON] -Pressed position ; The sound is heard from speaker system A.

[OFF] -Released position ; The sound is not heard from speaker system B.

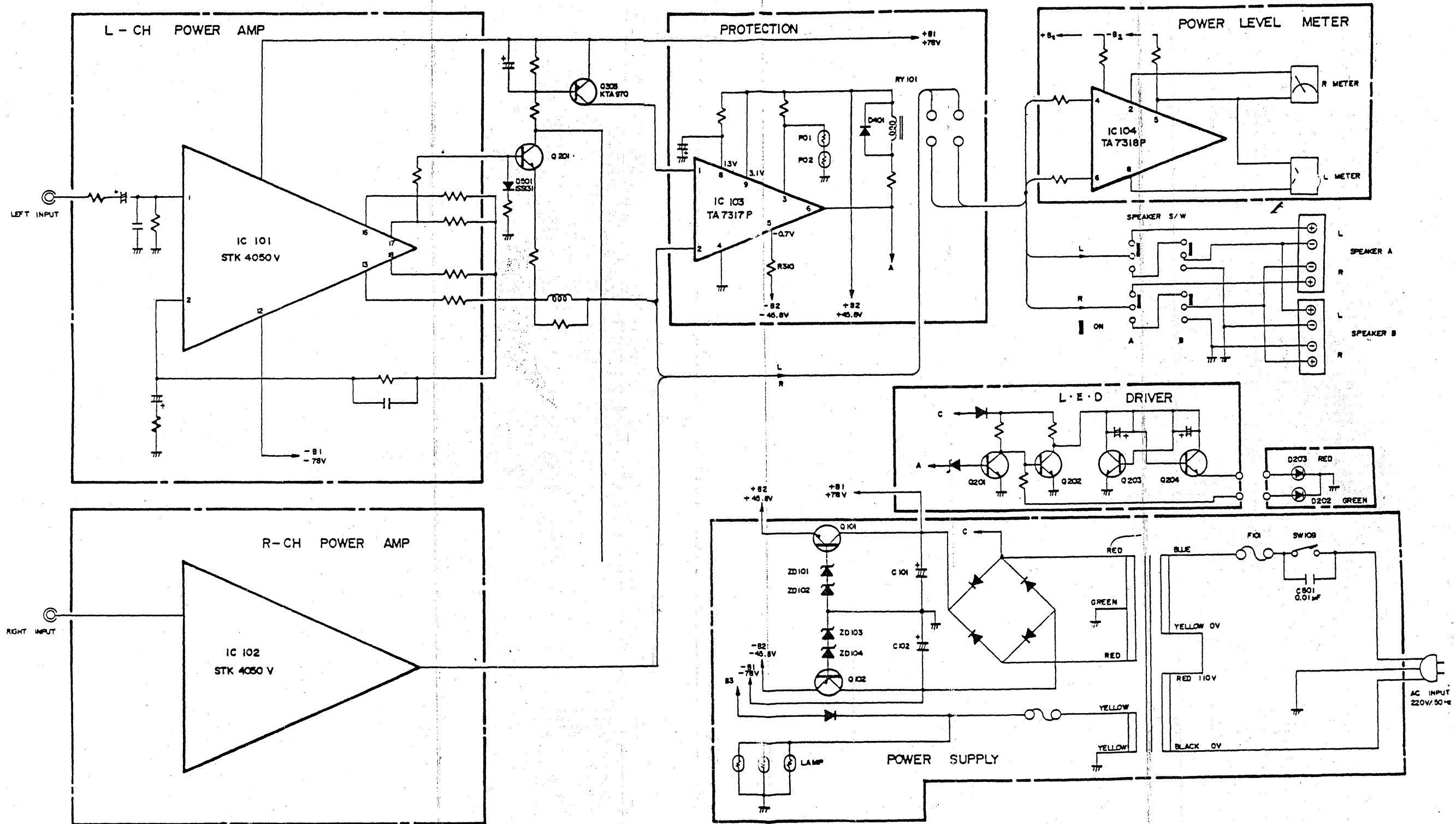
### ⑤ SPEAKER "B" SELECTOR SWITCH

Press button to listen to the sound connected to the speaker terminal B.

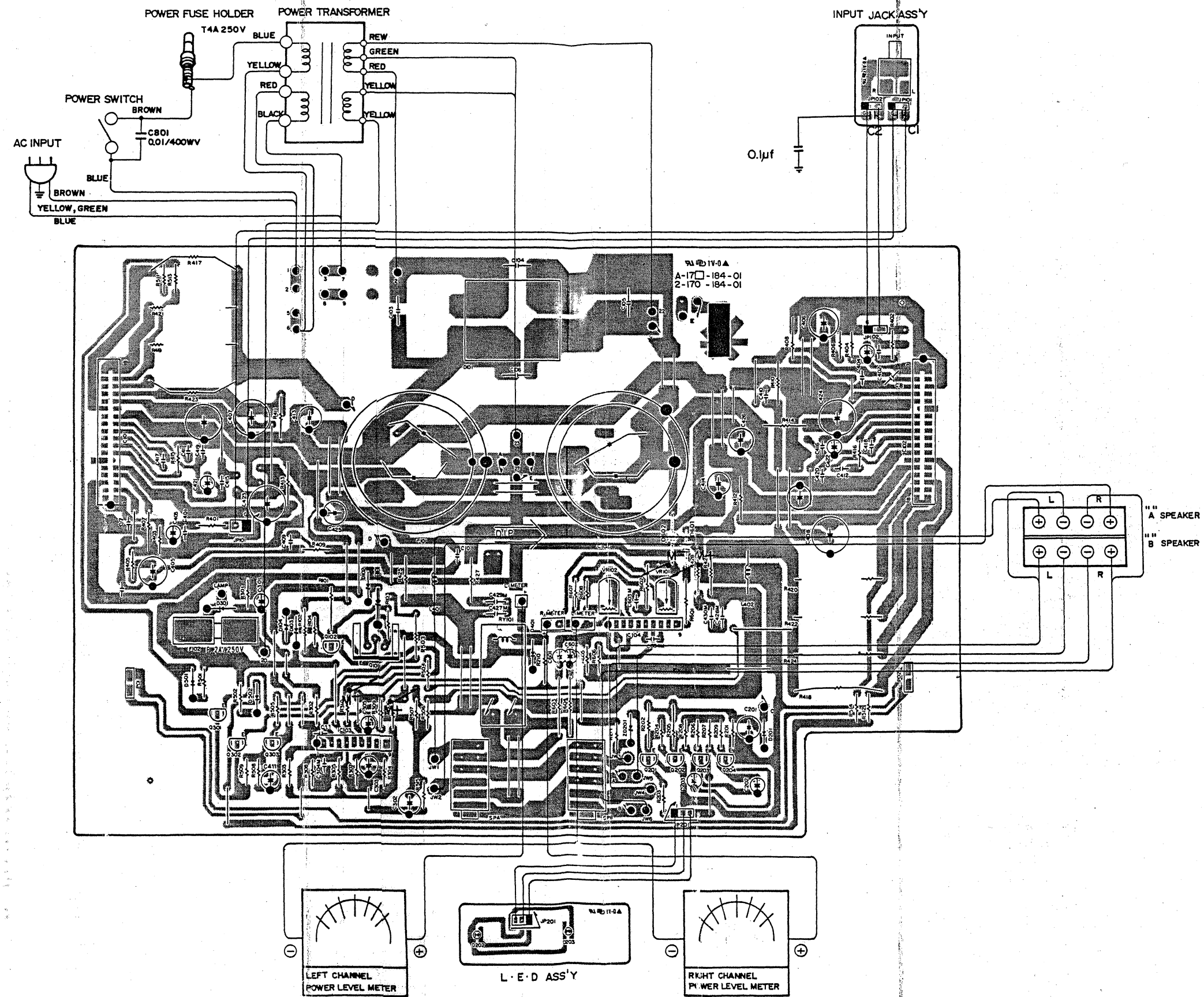
[ON] -Pressed position ; The sound is heard from speaker system B.

[OFF] -Released position ; The sound is not heard from speaker systems A.

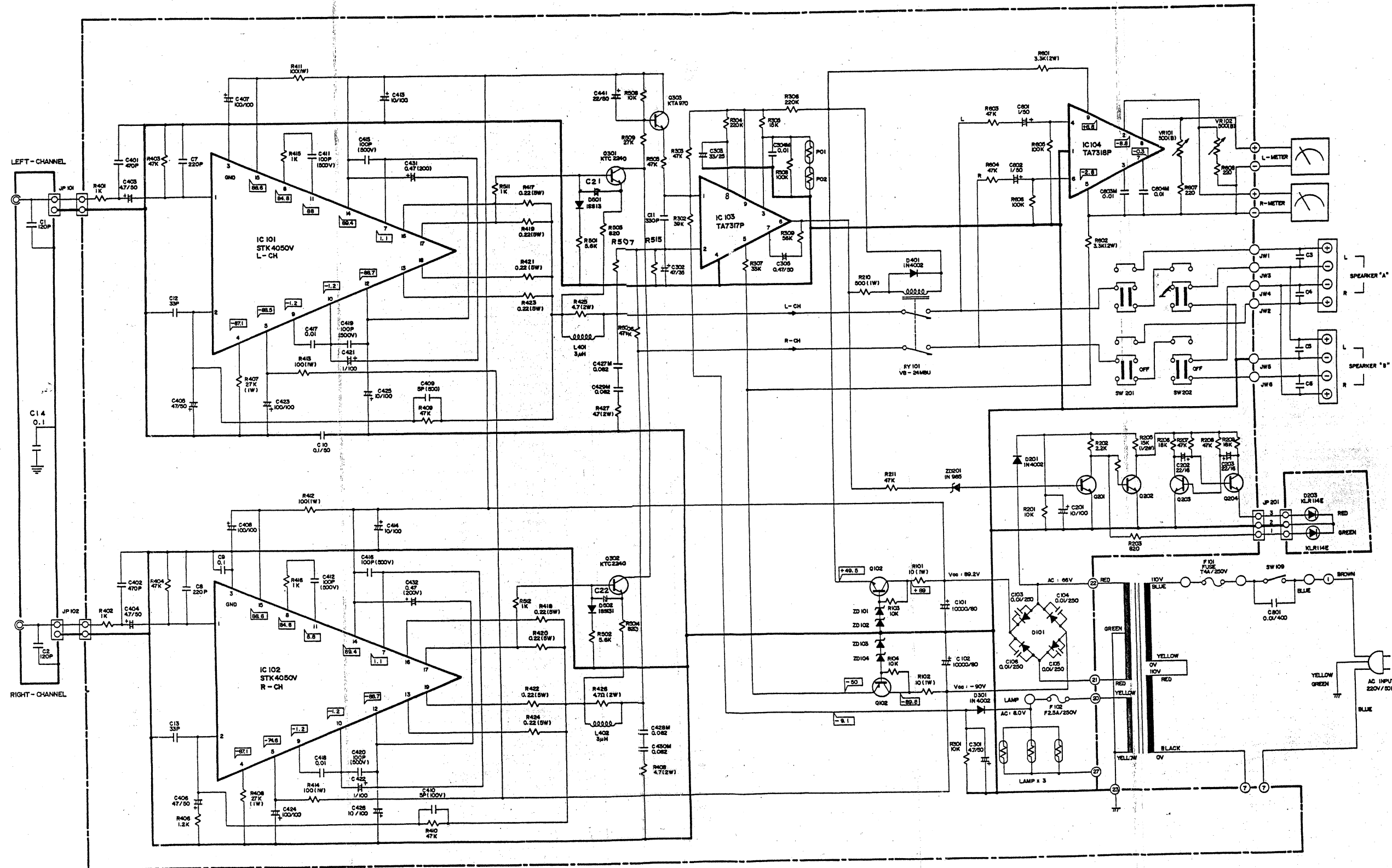
BLOCK DIAGRAM



# WIRING DIAGRAM



## SCHEMATIC DIAGRAM



**NOTES**

THE FOLLOWING UNITS AND FIGURES ARE USED WITHOUT WRITING IN THE SCHEMATICS

VOLTAGE : V	RESISTANCE : $\Omega$	$10^3$ : K
CURRENT : A	CAPACITANCE : F	$10^6$ : M
POWER : W	INDUCTANCE : H	$10^{12}$ : P

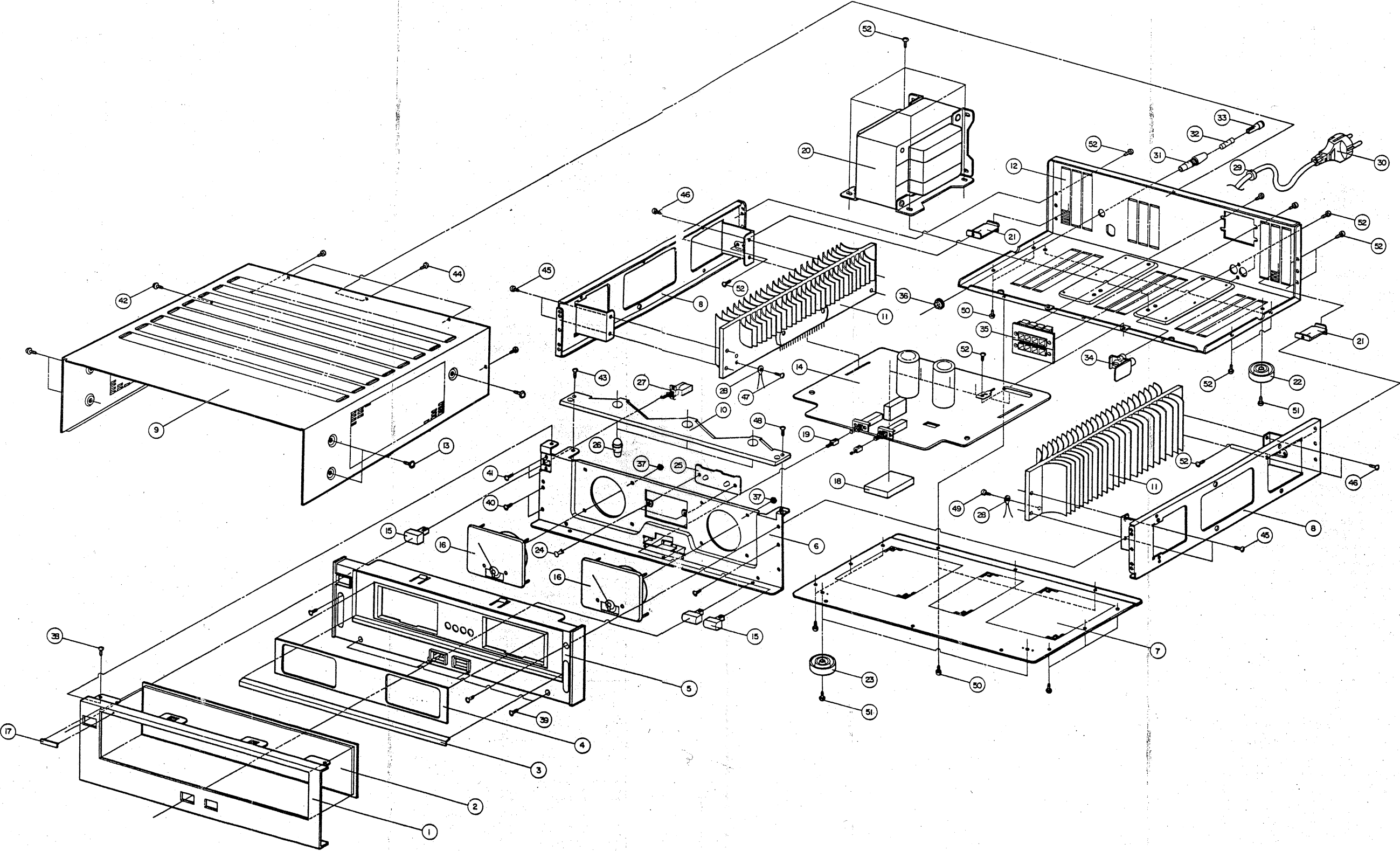
ALSO, 1/4 IN POWER,  $10^6$  IN CHARGE, 50V IN CAPACITOR ARE OMITTED  
R, L, C .... ARE THEIR NUMBERS ARE THE PART POSITION IN P.C.B

➡ : SIGNAL ROUTE

— : DC VOLTAGE AT UNLOADED

Q101 : KTC 2238  
Q102 : KTA 948  
Q201- 204, 301, 302 : KTC 2240  
Q303 : KTA 970  
DI01 : KBPC 25A  
ZD101 - 104 : IN 9708  
C3, C4, C5, C8 : Q015/500  
C21, C22; : 1/50(NP)

EXPLODED VIEW



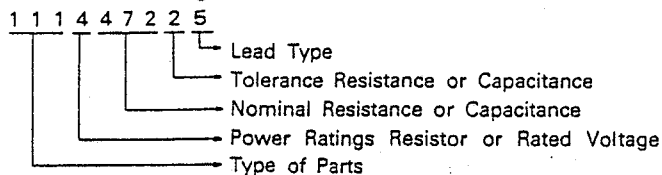
## PART LIST EXTERIOR

NO	PARTS NAME	PARTS NO.	Q'TY	NO.	PARTS NAME	PARTS NO.	Q'TY
1	PANEL,FRONT	3-116-801-01	1	27	S/W,POWER	2-202-195-01	1
2	SCREEN, WINDOW	3-114-714-12	1	28	POSISTOR	2-505-120-01	1
3	SHEET, COVER	3-114-719-01	1	29	BUSHING, STRAIN R	8-201-116-01	1
4	SCREEN, SUB	3-114-712-12	1	30	CODE, POWER	2-211-125-03	1
5	BASE, PANEL	3-116-802-01	1	31	SOCKET,FUSE HOLDER	2-999-112-01	1
6	STAY, PANEL	3-114-709-03	1	32	FUSE	2-188-620-01	1
7	PLATE, BOTTOM	3-111-114-03	1	33	CARRIER,FUSE HOLDER	2-999-113-01	1
8	FRAME, SIDE	3-114-708-03	2	34	JACK,2P PIN	2-155-502-01	1
9	CASE, BONNET	3-114-707-02	1	35	TERMINAL, PUSH	2-155-704-01	2
10	REFLECTOR	3-111-127-01	1	36	NUT,FUSE SOCKET		1
11	HEAT SINK	3-114-704-02	2	37	NUT		1
	CHASSIS, REAR	3-116-808-01	1	38	SCREW		
13	SCREW			39	SCREW		
14	PCB UNIT ASS'Y	A-17d-184-01	1	40	SCREW		
15	KNOB, POWER	3-214-504-01	3	41	SCREW		
16	ASS'Y METER,PANEL	3-116-806-01	2	42	SCREW		
17	BADGE	3-214-516-01	1	43	SCREW		
18	CUSHION, PCB	3-111-204-01	5	44	SCREW		
19	JOINT	3-111-130-02	2	45	SCREW		
20	TRANS, POWER	2-131-259-03	1	46	SCREW		
21	BRACKET, HEAT SINK	3-115-313-01	2	47	SCREW		
22	FOOT	3-116-127-01	2	48	SCREW		
23	FOOT ASS'Y	3-116-126-01	2	49	SCREW		
24	RIVET ASS'Y,PLASTIC	3-413-210-01	2	50	SCREW		
25	CONTROL PCB ASS'Y	A-17A-587-01	1	51	SCREW		
26	CAP(B),LAMP	3-211-804-01	3	52	SCREW		

# ELECTRICAL PARTS LIST

NOTE: When ordering parts first convert parts number into code form as shown in the following examples.

## ○ PARTS Numbering



## ○ RESISTOR

ex) Power Ratings Resistors

8 ... 1/8W	4 ... 1/4W	5 ... 1/2W
1 ... 1W	2 ... 2W	7 ... 4W

ex) Resistor Value

479 ... 4.7 Ω	560 ... 56 Ω	681 ... 680 Ω
822 ... 8.2KΩ	123 ... 12KΩ	224 ... 220KΩ

\*CARBON film Resistor; 1 1 1 4 37225(3.7KΩ, 1/4W)

## ○ CAPACITANCE

ex) Rated Voltage

3 ... 16V	4 ... 25V	5 ... 35V
6 ... 50V	7 ... 63V	1 ... 6.3V

ex) Type of Ceramic Capacitor

71 ... CKDYB	75 ... CKDYF	80 ... CCDCH
88 ... CCDSL	84 ... CCDRH	86 ... CCDTH

ex) Capacitor Value

040 ... 4pF	470 ... 47pF	221 ... 220pF
182 ... 1800pF	103 ... 0.01 μF	473 ... 0.047 μF

ex) Tolerance Capacitance

0 ... C = ± 0.25pF	1 ... D = ± 0.5pF	2 ... F = ± 1pF
3 ... G = ± 2%	4 ... J = ± 5%	5 ... K = ± 10%
9 ... Z = + 80 % - 20 %	6 ... M = ± 20%	

\*ELECTROLYTIC CAP: 1 4 2 647365(0.047 μF, 50V, ± 20%)

\*CERAMIC CAP: 1 8 8 647241(4700pF, 50V, ± 20%)

\*MYLAR CAP: 1 5 0 647251(4700pF, 50V, ± 10%)

\*STYROL CAP: 1 5 3 643141(430pF, 50V, ± 5%)

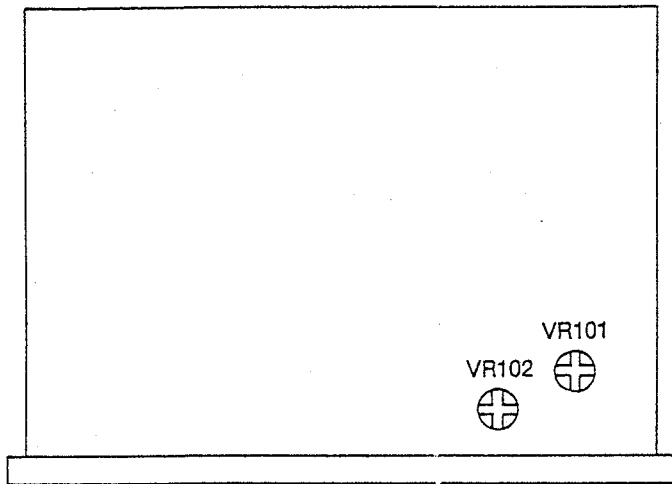


## P.C BOARD AND OTHERS

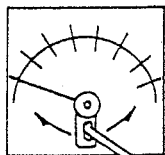
REF.NO.	PARTS NO.	DESCRIPTION
● IC's		
IC101,IC102 IC103 IC104	244203072 244210375 244211875	STA4050V TA7317P TA7318P
● TRANSISTORS		
Q101 Q102 Q201,Q202,Q203 Q204,Q301,Q302 Q303	240216521 240010721 240211811  240011411	KTC2238Y,PA KTA949-0 KTC2240-GR  KTA970-GR
● DIODES		
D101 D501,D502 D201,D301,D401 D101,D102,D103 D104 D201 D601,D602 D202 D203	241355991 241016995 241315111 242124031  242115031 242110031 241902101 241912101	KBPX25-02,25A 1SS131 IN4002 IN970 B,400,24V  IN965B,400,15V IN758A,400,10V KLG114E(GREEN) KLR114E(RED)
● CAPACITORS		
C101,C102 C305 C601,C602 C421,422 C201,C413,C414 C425,C426 C407,C408,C423 C424 C202,C203 C441 C202,C203 C441 C303 C301,C403,C404 C302 C405,C406 C103,C104,C105 C106 C7,C8 C11 C401 C402 C417,C418 C9,C10,C14 C409,C410 C411,C412,C415 C416,C419,C420 C3,C4,C5,C6 C304,C603,C604 C427,C428,C429 C430 C1,C2 C21,C22 C431,C432	199111001 142647861 142601061 142901061 142910061  142910161  142322061 142622061 142433061 142647961 142547061 142647061 199810101  188622141 188633141 171647151  171610241 175610491 188F10011 188F10151  171F15251 150610341 150682341  188612151 145601061 142C47863 199810401	NCH-010-A,10,000 $\mu$ F / 80V CEA,0.47 $\mu$ F / 50V CEA,1 $\mu$ F / 50V CEA,1 $\mu$ F / 100V CEA,10 $\mu$ F / 100V  CEA,100 $\mu$ F / 100V  CEA,22 $\mu$ F / 16V CEA,22 $\mu$ F / 50V CEA,33 $\mu$ F / 25V CEA,4.7 $\mu$ F / 50V CEA,47 $\mu$ F / 35V CEA,47 $\mu$ F / 50V 0.01 $\mu$ F / 250V(NCG-001-A)  CCDSL221J,50V,5% CCDSL331J,50V,5% CKDYB,471K,50V,5%  CKDYB102K,50V,5% CKDYF104Z,50V CCDSL10D,500V CCDSL101K,500V  CKDYB152K,500V Mylar Cap 103J,50V,5% Mylar Cap 823J,50V,5% CCDSL121K,50V,10% CEA,1,50V,L,NP,20% CEA,0.47,20%,200V,L NCG-002-0 spark-killer

REF.NO.	PARTS NO.	DESCRIPTION
● RESISTORS		
VR101,VR102 R417,R418,R419 R420,R421,R422 R423,R424 R205 R425,R426,R427 R428 R601,R602 R411,R412,R413 R414 R210 R202 R407,R408	254150101 139012401   11515321 113247923  113233223 113110123  113156123 113122221 113127323	SEMI,F,RESISTOR 500 WIRE WOUND RESISTOR 0.22 $\Omega$ ,5W  CARBON F RESISTOR,15K,1/2W M.O.R,4.7 $\Omega$ ,2W  M.O.R,3.3K $\Omega$ ,2W M.O.R,100 $\Omega$ ,1W  M.O.R,560 $\Omega$ ,1W M.O.R,2.2K $\Omega$ ,1W M.O.R,27K $\Omega$ ,1W
● COIL and OTHERS		
P01,P02 SW101 SW201,SW202 F10 F102 RY101 L401,L402 JACK,2P PIN	250512001 220219501 220213661 218862001 218861501 214011701 212920701 215550201 299911301  299911201  213125903 221112503 820111601	NCW-020 NSA-005(POWER SWITCH) S/W,PUSH FUSE(T4A,250V) FUSE(F2A,250V) RELAY VB-24MBU COIL (ATH-054-0) NKB-002-0 CARRIER (FUSE HOLDER) SOCKET (FUSE HOLDER) TRANS,POWER CODE,POWER BUSHING,STRAIN

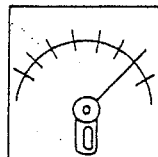
## ADJUSTMENT



(Fig. 2-a, b)



(Fig. 1-a)



(Fig. 1-b)

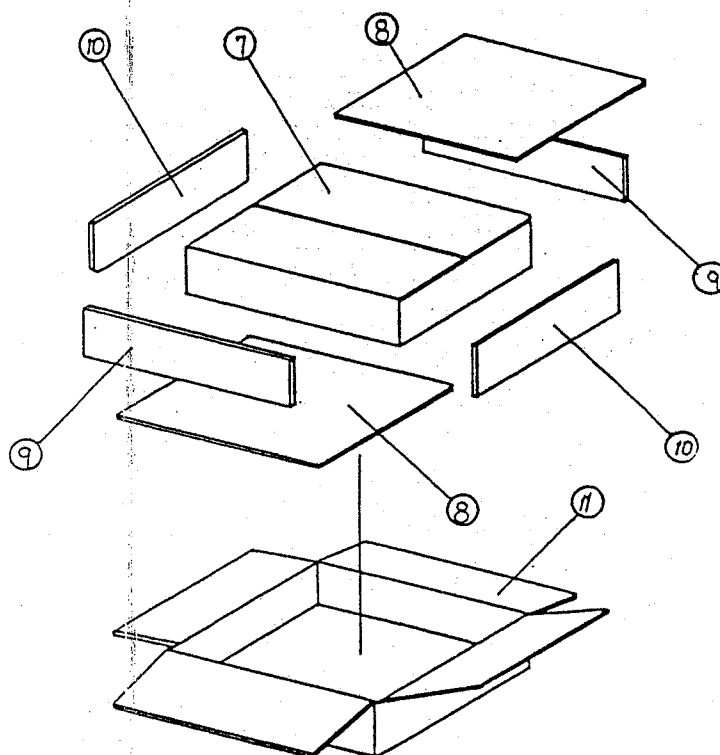
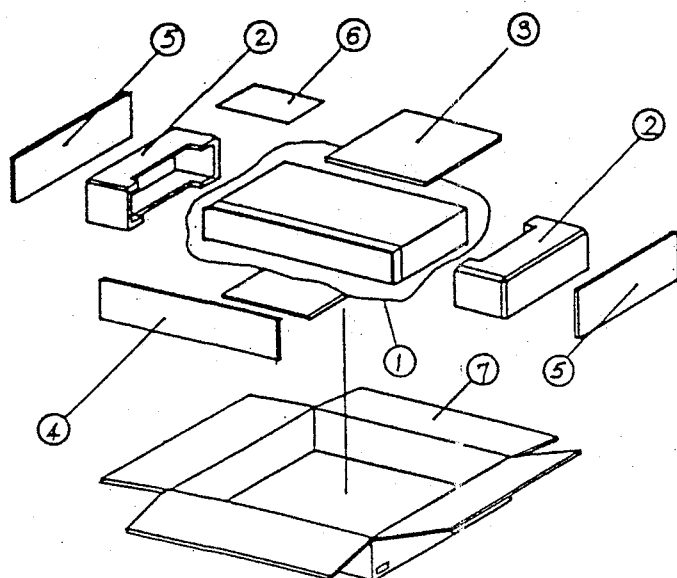
### 1. THE REFERENCE ADJUSTMENT OF THE LEVEL METER

After released the power and the front pannel adjust the meter needle to "0" on the scale(fig.1-a), (fig.1-b)

### 2. THE MEASUREMENT RANGE ADJUSTMENT OF THE LEVEL METER

Rotate the range key(VR101,VR102) till the meter needle points to "200W" on the scale(fig.2-a), (fig.2-b). Where range ADJ's clockwise rotation make a range-up while counter clockwise rotation make a range-down.

## PACKING DRAWING



NO	DESCRIPTION	PARTS NUMBER	QTY
1	SHEET POLY	3-415-046-01	1
2	PAD SIDE	3-114-706-01	2
3	PAD SHEET(A)	3-115-320-01	2
4	SHEET PACKING	3-115-309-01	1
5	PAD SHEET	3-116-713-01	2
6	MANUAL	3-116-804-01	1
7	PACKING CASE	3-115-303-01	1
8	PAD SHEET(C)	3-115-315-01	2
9	PAD SHEET(D)	3-115-316-01	2
10	PAD SHEET(E)	3-115-317-01	2
11	MASTER CARTON BOX	3-116-714-01	1